

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A method of fabricating an optical fiber having a plurality of holes, which are hereinafter referred to as fiber holes, extending along a longitudinal direction thereof, comprising the steps of:

preparing an optical fiber preform having a plurality of through holes, which are hereinafter referred to as preform holes, intended to serve as the fiber holes; and

~~determining a pressure to be applied to the inside of the preform holes, in accordance with each diameter of the fiber holes of an optical fiber to be fabricated; and~~

drawing said optical fiber preform under a drawing tension of 0.78 N or more while pressurizing the inside of the preform holes at ~~the determined~~ a pressure determined in accordance with a predetermined diameter for each of the fiber holes of the optical fiber to be fabricated.

2. (Previously Presented) A method according to claim 1, wherein the drawing tension is 1.18 N or more.

3. (Currently Amended) A method according to claim 1, wherein, ~~in the pressure determination, when assuming that each diameter of the fiber holes is d μ m and that d μ m is a~~ hole diameter for each of the fiber holes and p kPa is the pressure to be applied to the inside of the preform holes is ~~P kPa~~, the pressure P for obtaining an optical fiber with the fiber holes each having a diameter d of 2 μ m or less is determined so as to satisfy the following relationship:

$$-d + 4.5 < P < -1.5d + 6.8,$$

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the pressure P for obtaining an optical fiber with the fiber holes each having a diameter d of 2 μm or more but 4 μm or less is determined so as to satisfy the following relationship:

$$-d + 4.5 < P < -d + 5.8,$$

the pressure P for obtaining an optical fiber with the fiber holes each having a diameter d of 4 μm or more but 6 μm or less is determined so as to satisfy the following relationship:

$$-0.2d + 1.3 < P < -0.4d + 3.4, \text{ and}$$

the pressure P for obtaining an optical fiber with the fiber holes each having a diameter d of 6 μm or more is determined so as to satisfy the following relationship:

$$0.1 < P < 1.0.$$

Claims 4-6 (Cancelled)

7. (Previously Presented) A method according to claim 1, wherein the drawing tension is 1.76 N or less.

8. (Currently Amended) A method according to claim 7, wherein, ~~in the pressure determination, when assuming that each diameter of the fiber holes is d μm and that d μm is a hole diameter for each of the fiber holes and p kPa is the pressure to be applied to the inside of the perform holes is P kPa,~~ the pressure P for obtaining an optical fiber with the fiber holes each having a diameter d of 2 μm or less is determined so as to satisfy the following relationship:

$$-d + 4.5 < P < -1.5d + 6.3,$$

the pressure P for obtaining an optical fiber with the fiber holes each having a diameter d of 2 μm or more but 4 μm or less is determined so as to satisfy the following relationship:

$$-d + 4.5 < P < -d + 5.3,$$

the pressure P for obtaining an optical fiber with the fiber holes each having a diameter d of 4 μm or more but 6 μm or less is determined so as to satisfy the following relationship:

$$-0.2d + 1.3 < P < -0.3d + 2.5, \text{ and}$$

the pressure P for obtaining an optical fiber with the fiber holes each having a diameter d of 6 μm or more is determined so as to satisfy the following relationship:

$$-0.1 < P < -0.7.$$

Claims 9-11 (Cancelled)

12. (Withdrawn) An optical fiber comprising:

a core region extending along a longitudinal direction of said optical fiber;

a cladding region provided on an outer periphery of said core region; and

a plurality of holes provided in at least one of said core region and said cladding region and extending along the longitudinal direction, said holes arranged so as to constitute a layered structure having three or more layers in a cross section orthogonal to the longitudinal direction, wherein, when the maximum diameter and the minimum diameter of each of hole arranged so as to constitute the inner layers except the outermost layer of the layered structure are respectively set to d_{MAX} and d_{MIN} , the mean value of the maximum diameters d_{MAX} and the minimum diameters d_{MIN} of the holes arranged so as to constitute the inner layers is set to d_A , the fist deviation of each of the holes arranged so as to constitute the inner layers is set to D_1 (%) as defined by the following formula:

$$D_1 = \frac{|d_{MAX} - d_A|}{d_A} \times 100,$$

and the second deviation of each of the holes arranged so as to constitute the inner layers is set to D_2 (%) as defined by the following formula:

$$D_2 = \frac{|d_{MIN} - d_A|}{d_A} \times 100,$$

both of the first deviation D_1 and the second deviations D_2 of each of the holes arranged so as to constitute the inner circles are 10 (%) or less.

13. (Withdrawn) An optical fiber comprising:

a core region extending along a longitudinal direction of said optical fiber;

a cladding region provided on an outer periphery of said core region; and

a plurality of holes provided in at least one of said core region and said cladding region and extending along the longitudinal direction, said holes arranged so as to constitute a layered structure having three or more layers in a cross section orthogonal to the longitudinal direction,

wherein, when the maximum diameter and the minimum diameter of each of said plurality of holes are respectively set to d_{MAX} and d_{MIN} , the mean value of the maximum diameters d_{MAX} and the minimum diameters d_{MIN} of said plurality of holes is set to δ_A , the first deviation of each of said plurality of holes is set to Δ_1 (%) as defined by the following formula:

$$\Delta_1 = \frac{|d_{\text{MAX}} - \delta_A|}{\delta_A} \times 100,$$

and the second deviation of each of said plurality of holes is set to Δ_2 (%) as defined by the following formula:

$$\Delta_2 = \frac{|d_{\text{MIN}} - \delta_A|}{\delta_A} \times 100,$$

both of the first deviation Δ_1 and the second deviation Δ_2 of each of said plurality of holes are 10 (%) or less.

14. (Previously Presented) A method according to claim 1, wherein the drawing tension is 1.47 N or more.

15. (Previously Presented) A method according to claim 7, wherein the drawing tension is 1.18 N or more.

16. (Currently Amended) A method according to claim [[1]] 7, wherein the drawing tension is 1.47 N or more.